

WHAT IS CLAIMED IS:

1. A projection type display device comprising:
a light source;
5 a picture information display element; and
a light deflection device with a function to deflect light from the light
source and irradiate the deflected light on one region of the picture
information display element,
wherein the light deflection device scans the region on the picture
10 information display element to be irradiated with light over an entire region
of the picture information display element within each frame period to
thereby project a picture.
2. A projection type display device according to claim 1, further
15 comprising a light condensing device that condenses light from the light
source and irradiate the condensed light on the light deflection device.
3. A projection type display device according to claim 1, wherein
the picture information display element comprises a plurality of scanning
20 lines, and the scanning lines are driven at different timings to change the
region to be irradiated by the light.
4. A projection type display device according to claim 1, wherein a

part of the plurality of scanning lines is scanned at a scanning speed lower than a scanning speed at another part of the plurality of scanning lines.

5 5. A projection type display device according to claim 1, wherein
the picture information display element is composed of an effective scanning
area and an area outside the effective scanning area, and the area outside
the effective scanning area is irradiated with the light to create a period
during which the light is not irradiated on the picture information display
element.

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6. A projection type display device according to claim 1, wherein
the picture information display element comprises a plurality of scanning
lines extending in a first direction that are scanned in a second direction
transverse to the first direction.

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7. A projection type display device according to claim 6, wherein
the light from the light source irradiated on the picture information display
element spans in an entire length of the picture information display element
in the first direction, and on a part of the picture information display
20 element in the second direction.

8. A projection type display device according to claim 7, wherein
the picture information display element is entirely irradiated with the light

by scanning the picture information display element in the second direction regions in a specified timing within each frame period.

9. A projection type display device according to claim 1, wherein
5 the picture information display element has vertical and horizontal sides;
and the light from the light source irradiated on the picture information
display element spans in an entire length of the picture information display
element in a first direction parallel with one of the vertical and horizontal
sides, and in a part of the picture information display element in a second
10 direction perpendicular to the first direction.

10. A projection type display device according to claim 9, wherein
the region on the picture information display element to be irradiated with
the light is scanned in the second direction to irradiate an entire area of the
15 picture information display element with the light.

11. A projection type display device according to claim 10, wherein
the picture information display element is provided with information signals
through a line sequential driving, and a direction of the line sequential
20 driving is identical with the second direction.

12. A projection type display device according to claim 1, wherein
the light from the light source is deflected to irradiate a region of the picture

information display element, and an entire area of the picture information display element is irradiated with the light by scanning the region of the picture information display element to be irradiated with the light in the horizontal and vertical directions in a specified timing within each frame
5 period.

13. A projection type display device according to claim 1, wherein the picture information display element is a liquid crystal display element.

10 14. A projection type display device according to claim 13, wherein the liquid crystal display element is a reflective type liquid panel.

15 15. A projection type display device according to claim 13, wherein the liquid crystal display element is a transmissive type liquid panel.

16. A projection type display device according to claim 13, wherein the liquid crystal display element uses a liquid crystal display mode having characteristics in which an average molecular axis of the liquid crystal indicates a monostabilized position when no voltage is applied, wherein the
20 average molecular axis of the liquid crystal tilts to a first direction from the monostabilized position at an angle according to the magnitude of a voltage of a first polarity applied, the average molecular axis of the liquid crystal tilts to a second direction opposite the first direction from the

monostabilized position at an angle according to the magnitude of a voltage of a second polarity that is an opposite polarity of the first polarity applied, and a maximum tilt angle β_1 of the average molecular axis of the liquid crystal upon application of the voltage of the first polarity and a maximum tilt angle β_2 of the average molecular axis of the liquid crystal upon application of the voltage of the second polarity with respect to a position of the average molecular axis of the liquid crystal in the monostabilized position satisfy a relation of $\beta_1 < \beta_2$, and wherein the liquid crystal display element has active elements that are line sequentially scanned.

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17. A projection type display device according to claim 1, wherein the picture information display element displays picture information by changing the reflecting angle of a mirror surface present on each pixel to control the light on/off state.

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18. A projection type display device according to claim 1, wherein the light deflection device is a polygon mirror.

19. A projection type display device according to claim 1, further comprising a function to change a scanning speed of the light deflection device according to display picture information.

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20. A projection type display device according to claim 1, further

comprising a picture processing function to change a scanning speed of the light deflection device and give a picture information signal to the picture information display element according to the scanning speed.

5 21. A projection type display device according to claim 1, wherein the light deflection device irradiates the light on an area outside of an effective display area of the picture information display element.

 22. A projection type display device according to claim 21, further
10 comprising a function to change a scanning speed of the light deflection device according to picture information and control a period in which the area outside the effective display area is irradiated with the light according to a luminance level of the picture information.

15 23. A projection type display device according to claim 1, wherein the light source is a point light source.